

CLAIMS

1. An apparatus for outputting a laser beam comprising:
a laser beam source;
5 laser beam diameter adjusting means for adjusting a diameter of a beam incident from said laser beam source;
laser beam reflecting direction controlling means for controlling a reflecting direction of the beam incident from said laser beam diameter adjusting means; and
10 recording means for recording information data in accordance with said diameter of the beam incident from said laser beam reflection direction controlling means.
2. The apparatus according to claim 1, wherein said laser beam diameter adjusting means comprises:
15 a piezoelectric/electrostrictive film type element comprising:
a substrate;
a piezoelectric/electrostrictive operating section integrated onto said substrate; and
20 a reflective surface associated with said piezoelectric/electrostrictive film type element.
3. The apparatus according to claim 2, wherein said substrate of the piezoelectric/electrostrictive film type element has a relatively thin and flexible sheet section and a peripheral section surrounding said sheet section, said peripheral section being relatively rigid and thicker than said sheet section, and wherein said piezoelectric/electrostrictive operating section is
25 arranged on said sheet section of the substrate.
4. The apparatus according to claim 3, wherein said piezoelectric/electrostrictive operating section comprises:
a first electrode arranged on said sheet section;
30 a piezoelectric/electrostrictive layer arranged on said first electrode;
a second electrode arranged on said piezoelectric/electrostrictive layer, said second electrode being capable of applying an electric field to said piezoelectric/electrostrictive layer in cooperation with said first electrode; and

wherein said reflective surface is formed by a layer that is arranged on said second electrode.

5. The apparatus according to claim 3, wherein said piezoelectric/electrostrictive operating section comprises:

- 5 a first electrode arranged on one face of said sheet section;
a piezoelectric/electrostrictive layer arranged on said first electrode;
a second electrode arranged on said piezoelectric/electrostrictive layer,
said second electrode being capable of applying an electric field to said
piezoelectric/electrostrictive layer in cooperation with said first electrode; and
10 wherein said reflective surface is formed by a layer that is arranged on the
other face of said sheet section.

6. The apparatus according to claim 3, wherein said piezoelectric/electrostrictive operating section comprises:

- 15 a first electrode arranged on said sheet section;
a piezoelectric/electrostrictive layer arranged on said first electrode; and
a second electrode arranged on said piezoelectric/electrostrictive layer,
said second electrode being capable of applying an electric field to said
piezoelectric/electrostrictive layer in cooperation with said first electrode,
wherein said second electrode forms said reflective surface.

20 7. The apparatus according to claim 1, further comprising at least one
of:

- a first optical system arranged an optical path between said laser beam
source and said laser beam diameter adjusting means; and
a second optical system arranged an optical path between said laser
25 beam reflecting direction controlling means and said recording means.

8. An apparatus for outputting a laser beam comprising:

- a laser beam source;
laser beam diameter adjusting means for adjusting a diameter of a beam
incident from said laser beam source;
30 laser beam reflecting direction controlling means for controlling a
reflecting direction of the beam incident from said laser beam diameter
adjusting means; and
recording means for recording information data in accordance with said

diameter of the beam incident from said laser beam reflection direction
controlling means;

wherein said laser beam diameter adjusting means comprises:

a piezoelectric/electrostrictive film type element comprising:

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a substrate;

a piezoelectric/electrostrictive operating section integrated onto said
substrate; and

a reflective surface associated with said piezoelectric/electrostrictive
film type element.

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9. The apparatus according to claim 8, wherein said substrate of the
piezoelectric/electrostrictive film type element has a relatively thin and
flexible sheet section and a peripheral section surrounding said sheet section,
said peripheral section being relatively rigid and thicker than said sheet
section, and wherein said piezoelectric/electrostrictive operating section is
15 arranged on said sheet section of the substrate.

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10. The apparatus according to claim 9, wherein said
piezoelectric/electrostrictive operating section comprises:

a first electrode arranged on said sheet section;

a piezoelectric/electrostrictive layer arranged on said first electrode;

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a second electrode arranged on said piezoelectric/electrostrictive layer,
said second electrode being capable of applying an electric field to said
piezoelectric/electrostrictive layer in cooperation with said first electrode; and

wherein said reflective surface is formed by a layer that is arranged on said
second electrode.

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11. The apparatus according to claim 9, wherein said
piezoelectric/electrostrictive operating section comprises:

a first electrode arranged on one face of said sheet section;

a piezoelectric/electrostrictive layer arranged on said first electrode;

a second electrode arranged on said piezoelectric/electrostrictive layer,

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said second electrode being capable of applying an electric field to said
piezoelectric/electrostrictive layer in cooperation with said first electrode; and

wherein said reflective surface is formed by a layer that is arranged on the
other face of said sheet section.

12. The apparatus according to claim 9, wherein said piezoelectric/electrostrictive operating section comprises:

a first electrode arranged on said sheet section;

a piezoelectric/electrostrictive layer arranged on said first electrode; and

5 a second electrode arranged on said piezoelectric/electrostrictive layer, said second electrode being capable of applying an electric field to said piezoelectric/electrostrictive layer in cooperation with said first electrode, wherein said second electrode forms said reflective surface.

10 13. The apparatus according to claim 8, further comprising at least one of:

a first optical system arranged an optical path between said laser beam source and said laser beam diameter adjusting means; and

a second optical system arranged an optical path between said laser beam reflecting direction controlling means and said recording means.